DOCUMENT RESUME

ED 099 149 RC 008 213

AUTHOR	Schumacher, C. M.
TITLE	A Teacher's Guide To: Indians and the Outdoor Classroom.
INSTITUTION	Soil Conservation Service (DOA), Huron, S. Dak.
PUB DATE	Apr 74
NOTE	35p.
EDRS PRICE	MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS	*American Indians; Botany; Definitions; Ecology; *Environmental Education; *Outdoor Education; *Plant Identification; *Teaching Guides
IDENTIFIERS	*South Dakota

ABSTRACT

As a basic teacher's guide to the study of plants in their environment, this document serves primarily as a starting point for outdoor education with an American Indian emphasis in the State of South Dakota. The State is divided into three broad environmental categories or "biotic communities" (Prairie and Plains, Woodlands, and Wet Places); lists of plants found in each of these biotic communities are grouped under the further classifications of Trees, Shrubs and Woody Vines, Forbs, and Grasses. Each plant listed is identified by both common and scientific names. Detailed annotations following each definition emphasize the American Indian usage and/or knowledge of the plant described. An index is provided. (JC)

ED 099749

A TEACHER'S GUIDE TO:

BEST COPY AVAILABLE

INDIANS AND THE OUTDOOR CLASSROOM

RECEIVED
NOV 22 1974
NMSU
ERIC

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

"Old Man Saw a Crane Flying Over the Land"

Pen & ink by Charles M. Russell,
C. R. Smith collection,
Montana Historical Society

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
HURON, SOUTH DAKOTA 57350

RC008213

USDA-SCS-LINCOLN, NEBR. 1974

A TEACHER'S GUIDE TO:

INDIANS AND THE OUTDOOR CLASSROOM

By C. M. Schumacher, Soil Conservation Service, Huron, South Dakota

Prior to their contact with other civilizations the American Indians were a people who lived very close to nature. They had few distracting influences to interfere with their observation of the plants and animals that shared and made up their environment.

The Indians found many things in the plants growing around them that people today are in too big a hurry to recognize. In the plant world they found beauty, mystery, medicine, and, the ever necessary item, food.

Students who visit natural areas in South Dakota will find many of the same plants that the Indians found when they were the only people on this continent. This is one reason why natural areas are valued for their use as Outdoor Classrooms. They provide an insight into history as well as serving as a measure of the environment in which we live.

Natural areas, as used herein, are separated into three broad categories as follows: **Prairie and Plains**, **Woodland**, and **Wet Places**. The environment in each of these biotic communities is different and generally the kinds of plants found in them are different. Each plant mentioned is listed only once, under the community where it most frequently occurs. The lists of plants in each community are further divided into the following groupings: Trees, Shrubs and Woody Vines, Forbs, and Grasses. These groupings are defined in the index of this paper.

Students will be most interested in the Indian usage of native plants when they are in the field and can see the plant referred to. This can be accomplished when the instructor identifies the plant, or when plants have been previously marked and identified. Reference number 8, by Johnson and Nichols, and number 13, by Van Bruggen, are well illustrated and will be most helpful in plant identification. For the general location of plant communities see the map, "South Dakota - Natural Vegetation", on page 3.

> Students should be advised not to experiment by eating or tasting berries or other parts of wild plants. Some plants are harmful and some are deadly. The uses of the plants described in this publication are not to be construed in any way as a recommendation by the author or the U. S. Department of Agriculture, Soil Conservation Service.

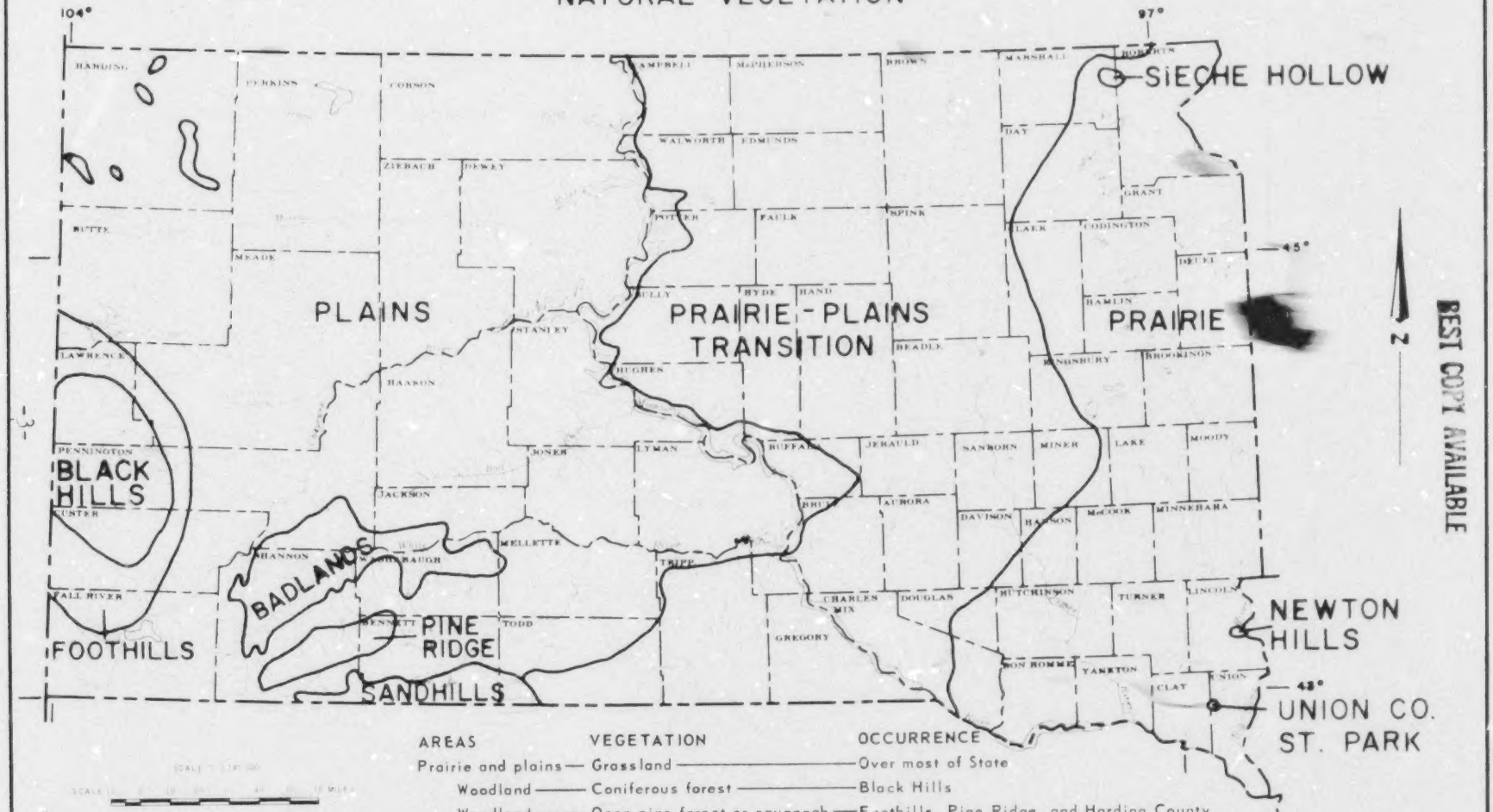
C. M. Schumacher, Range Conservationist, SCS, Huron, S. D., prepared this paper, April 1974, largely from the references listed.

U. S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

SOUTH DAKOTA

NATURAL VEGETATION



AREAS	VEGETATION	OCCURRENCE
Prairie and plains	Grassland	Over most of State
Woodland	Coniferous forest	Black Hills
Woodland	Open pine forest or savannah	Foothills, Pine Ridge, and Harding County
Woodland	Northern flood plain forest	Bands adjacent to major streams
Woodland	Deciduous forest	Sieche Hollow, Newton Hills, and Union County State Park
Wet Places	Aquatic vegetation	Marshes, potholes, and edges of lakes and streams

SOURCE:
SCS DRAWING NO. S-D-20,144 AND
INFORMATION FROM FIELD TECHNICIANS. MODIFIED POLYCONIC PROJECTION.

USDA-SCS-LINCOLN, NEBR. 1974

5,L-34,081.1

-3-

BEST COPY AVAILABLE

PRAIRIE AND PLAINS

Grasses dominated the vegetation of the Prairie and Plains, and the Prairie and Plains dominated the land of Dakota. In South Dakota the tall grasses of the prairie on the east merged with the shorter grasses of the plains on the west. Together these grassland biomes covered over 90 percent of the State.

These vast grasslands were a very harsh and inhospitable environment for a people who traveled on foot and made their tools from stone, wood, or bone. The excellently worked stone points found in the Great Plains, given such names as "Folsom", "Clovis", or "Angostura", are relicts of an ancient people. These people lived here seven to ten thousand years ago when the Great Plains was not semi-arid. The more modern Indian, the Arikara, Mandan, and Hidatsa, moved into the State from woodlands south of Dakota about the time Columbus discovered America. These tribes lived in or near the woods and only once or twice a year ventured out into the grassland to hunt buffalo. It was not until the horse was acquired from tribes south and west of Dakota, in the early 1700's, that the grasslands became a home for Indian tribes like the nomadic Arapahoe, Cheyenne, and Dakota. These tribes, who once lived in the woodlands further east, changed their life style when they moved, or were forced out onto the Prairie and Plains.

SHRUBS - in Prairie and Plains

Broom snakeweed (Gutierrezia sarothrae)

This small stiff-stemmed perennial is a half-shrub, growing on dry uplands of the plains. A decoction, made by boiling the leaves, was given to horses as a remedy for diarrhea. The horses were forced to drink this bitter potion by keeping them away from other water.

Fringed sagewort (Artemisia frigida)

A small shrub, or half-shrub, on the plains of the west. This plant was called "woman's medicine" by the Dakota. A decoction of this plant was used for bathing and was also taken internally. Like other species of Artemisia, it was used in religious ceremonies to drive away any evil spirits.

Inland ceanothus (Ceanothus herbaceous)

More common on the prairie than the plains. On the buffalo hunt, when wood was scarce, the large, gnarled, red roots of this shrub were used for fuel. The leaves were used by all tribes to make a drink tasting much like Asiatic tea. A close relative of this plant, New Jersey Tea, was used for making tea by American troops during the Revolution.

pp 4, 5, 6 either blank or unreproducible photo

Leadplant (Amorpha canescens)

Common on both prairie and plains. The Indians in eastern Nebraska called this "buffalo bellow plant". This abundant plant bloomed during the mating season of the buffalo. Because of its association with the buffalo, it was often used in ceremonies that preceded the annual buffalo hunts. The leaves of leadplant were sometimes used to make a hot tea-like drink and sometimes as smoking material.

Pincushion cactus (Mammillaria vivipara)

Common on the plains and less common on shallow soils of the prairie. The pretty pink or rose colored blooms on this small round cactus were admired but moccasins of elk or deer skin provided little protection from the sharp spines. The Plains Indians made their moccasins with a tough sole of buffalo hide.

Pricklypear (Opuntia spp.)

This cactus is common on claypan soils of the plains and less common on the prairie. The fruits of some species of pricklypear (O. tortispina) were eaten fresh, either raw or cooked. They were also dried for winter use. Sometimes when food was scarce the fleshy pads were roasted in hot ashes and after the outer skin with the thorns was removed the remaining sweet succulent substance was eaten. The sticky juice of the pads was used as a sizing to fix colors on hides, or on receptacles made of hides. It was applied by rubbing a freshly peeled stem over the painted surface.

Silver buffaloberry (Shepherdia argentea)

Common on plains and rare on the prairie. The silver fruits were eaten fresh in season or were dried for use in winter.

Skunkbush sumac (Rhus trilobata)

On hillsides and breaks, more common in western part of State. Plains Indians sometimes ate the berries and they used the branches to make baskets.

Soapweed (Yucca glauca)

Common on sandy soils especially on choppy sandhills. All of the tribes used the root of this plant for soap, especially for washing the hair. The Dakota said that it made the hair grow. The leaves of soapweed were shredded and twined into thread. The sharp point was used as a needle. Where wood was scarce the sharp pointed leaves were bound together and used as a fire drill. The peeled and dry stem was used as the punk, or tinder, in which the fire was started.

Western sandcherry (Prunus pumila var. besseyi)

A common shrub on the sandhills. The black mottled or yellowish fruits were a favorite food. All the tribes that had access to sandcherries made full use of them for food, as a sauce during fruiting season, or as dried fruit for winter use.

Wild rose (Rosa spp.)

Common on prairies over the State. The Plains Indians satisfied their love of the beautiful with the beauty provided by "Mother Earth". The Dakotas had a song of the wild rose which Gilmore (5) says was introduced by a narrator as follows:

> "I will tell you of something I know,
> And you can't half imagine how good;
> It's the song of the wild roses that grow
> In the land the Dakota-folk love."

Early immigrants and settlers also appreciated the beauty of the prairie wildflowers. The painting by the South Dakota artist, Harvey Dunn, "The Prairie Is My Garden", points this out. In contrast to the scene in this picture, the Indians seldom picked the wildflowers, but admired them in the places where they grew.

FORBS - in Prairie and Plains

Blacksamson (Echinacea pallida var. angustifolia)

Common on shallow soils on the prairie and plains. Also known as "purple coneflower". This plant was used as a remedy for snake bite and other venomous bites and stings. A piece of the black root was used as treatment of toothache, a piece being kept on the painful tooth until there was relief. Burns were bathed with the juice of the plant to give relief from pain. Extracts from the root of this plant are still used in modern medicines.

Blue verbena (Verbena hastata)

Valleys and draws over the State. Some tribes steeped the leaves to make a beverage, like tea. The Dakota boiled the leaves to make a remedy for stomach ache.

Buffalogourd (Cucurbita foetidissima)

A perennial vine on sandy soils in the southern part of the State. This plant was believed to possess special mystic properties and the thick taproot was held in high esteem as a medical agent. The fruit, which is green or orange and 2 to 4 inches in diameter, is not the gourd that was used to make rattles. The gourd used for making rattles was the dipper gourd (Lagenaria sp.). The dipper gourd is an annual, native far south of Dakota, which was cultivated by some tribes to provide the shells for rattles.

Bush morningglory (Ipomoea leptophylla)

Occasional on sandy soils in the western part of the State. This plant has a very large root that may weigh as much as 25 pounds. This root was sometimes used as a famine food by the Cheyennes and Arapahoes. The Pawnee used the root in the smoke treatment as a remedy for nervousness and bad dreams.

BEST COPY AVAILABLE

Butterfly milkweed (Asclepias tuberosa)

In meadows in the eastern part of State, but no longer common. The Omaha called this plant "raw medicine". The root was eaten raw for lung troubles. It was also chewed and placed on wounds.

Carrotleaf lomatium (Lomatium foeniculaceum)

In dry soils of prairie and plains. The seeds of this little plant were used as a love potion by men of several Plains tribes. A Pawnee said that a person who carried the seeds would have many friends.

Common breadroot (Psoralea esculenta)

Common on hillsides of the prairie and plains. The root of this plant was an important item in the diet of the Plains tribes. French voyageurs and trappers also valued this food plant which they named "pomme de prairie" [apple of the prairie]. The thickened part of the root, about the size and shape of a hen's egg, was peeled and eaten either raw or cooked. It has a sweetish, turniplike taste. The peeled roots were braided into long strings by the tapering ends and then were stored or used in trade. For winter use the dried root was cut into thin slices and crushed to make a starchy flour. (A favorite winter dish consisted of a stew made of dried buffalo meat, which included some marrow, and a portion of pounded and sun-dried sandcherries. While this was cooking over the fire, flour made from the common breadroot was added.) Growing as this plant does, on the dry prairie in hard ground, with the enlargement of the root several inches below the surface, it was not easy to harvest. The top of the plant breaks off soon after ripening and is blown away, thus making the root almost impossible to find.

Common milkweed (Asclepias syriaca)

In valleys, more common in eastern part of State. The Indians used this plant for food at three stages of growth. The young sprouts were used like asparagus. The clusters of floral buds and young mature fruits were prepared by boiling.

Common sunflower (Helianthus annuus)

Common throughout the State. This is the sunflower that was cultivated as a food product by the Arikara, Mandan, and Hidatsa. When cultivated the seeds were larger than those on the wild plant. The seeds were eaten raw, or pounded up with other seeds or fruits and made into flat cakes that were dried in the sun. The Teton Dakota said that when the sunflowers were in bloom the buffalo were fat and the meat good.

Common yarrow (Achillea millefolium)

Common on prairie and plains. This plant was steeped in water to make a liniment used by the Winnebago to treat swellings. For earache a wad of the leaves was put in the ear.

Compassplant (Silphium laciniatum)

This plant was common on prairies. When wounded this resinous plant exudes a gum that the Indian children gathered and used as chewing gum. The Otoe and Ponca said that where this plant is abundant lightning is apt to strike, so they did not camp in such a place. It is called compassplant because the edges of the alternate, large stem leaves point north and south.

Cudweed sagewort (Artemisia ludoviciana)

On prairie and plains, more common west. A brew made from this plant was taken for stomach trouble and many other ailments. It was also important in religious ceremonies, being used much like incense. It might be used at the beginning of any ceremony to drive away evil spirits. Also, a person who had broken some taboo, such as touching a sacred object, could purify himself by bathing with sagewort.

Cup rosinweed (Silphium perfoliatum)

On favorable sites in eastern part of State. The root stock was used in the smoke treatment for head colds, neuralgia, and rheumatism. The Winnebago called this plant "weed that holds water", which is somewhat like its present name. This plant has opposite leaves and the broad bases of some upper pairs of leaves grow together forming cups that hold rain water.

Curlycup gumweed (Grindelia squarrosa)

A weedy plant common throughout the State. A remedy was made from this plant to be given to children for colic. The Pawnee boiled the tops and leaves to make a wash to treat saddle sores on horses.

Dodder (Cuscuta spp.)

Common throughout the State. These yellow leafless vines are parasitic on other plants on which they attach themselves and secure food. The dodder vine was used by Pawnee maidens to determine if their suitors were sincere. A girl would pick a vine of this plant and, while thinking of her boyfriend, would toss it over her shoulder into a patch of the host species. She marked this spot and after two days she would return to see if the dodder had attached itself to the host. If so, she went away content, but if it was not attached, she took it as a warning. This is much like the custom of pulling the petals off a daisy and counting "he loves me -- he loves me not".

Dogweed (Dyssodia papposa)

In river valleys of the plains. The Dakota called this plant "prairie-dog food" and said it is always found in prairie-dog towns. A decoction of dogweed and broom snakeweed was used as a remedy for coughs in horses.

Dotted gayfeather (Liatris punctata)

Common on uplands throughout the State. Plains Indians sometimes ate the bulb-like roots but only as survival food as they are coarse and fibrous.

Downy gentian (Gentiana puberulenta)

Prairies in eastern part of State. The Winnebago called this "blue-blossomed medicine". The Dakota called it "yellow medicine" because of the color of the roots which were used to make medicine taken as a tonic.

False-pennyroyal (Hedeoma hispida)

Dry uplands of prairie and plains. The leaves were steeped to make a remedy for colds. It was also used as a flavor and appetizer in food for the sick.

Goldenrod (Solidago spp.)

Common throughout the State. The Omaha Indians said that this plant bloomed when the corn ripened. When they were on their buffalo hunt in the western part of Nebraska they would see the goldenrod starting to bloom and they would say, "Now our corn is beginning to ripen at home".

Groundplum milkvetch (Astragalus crassicarpus)

Common on plains and prairie. The round or oval pods, nearly an inch in diameter, formed at corn planting time. The Omaha would put some of these pods with the seed corn before it was planted. The prairie dog stored these pods for a winter food supply.

Hoary puccoon (Lithospermum canescens)

This plant common on prairies and plains, blossoms in May. Children chewed the root of this plant with their gum [resin from compassplant] to make it red in color.

Illinois bundleflower (Desmanthus illinoensis)

Sandy soils in southern part of the State. When mature the entire plant, with its persistent bunches of seed-filled pods, was used by little boys as a rattle.

Lanceleaf groundcherry (Physalis lanceolata)

On prairie and plains. This perennial with greenish-yellow fruits was called "owl eyes" by the Winnebago. The root was used in the sweat treatment and a decoction from the root was taken for stomach trouble.

Linearleaf wormwood (Artemisia dracunculus)

Valleys over the State. Brooms for sweeping the lodge floor were made by binding together a bundle of the tops. This plant was liked for this purpose because of its pleasant odor. The Pawnee called this plant "oroca".

Maximilian sunflower (Helianthus maximiliani)

In valleys of prairie and less commonly the plains. When new plants are discovered they are classified as to genus and given a specific name by the botanist who first describes them. Helianthus, the generic name, comes from the Greek words "helios" meaning sun and "anthos" meaning flower. The name maximilian was given to this species by the German botanist Heinrich Schrader to honor Prince Maximilian of Wied. Prince Maximilian made a scientific exploration up the Missouri River through the Dakotas in 1833-34. Some authors say the prairie Indians collected the short rootstalks of this sunflower for food.

Meadow anemone (Anemone canadensis)

On uplands of the plains. This plant was called "Little buffalo medicine" by the Omaha and was one of their most highly esteemed medicines.

Pasqueflower (Anemone patens)

Hillsides, on shallow soil, more common east. This plant, the State Flower of South Dakota, blooms very early in the spring before most other plants have started to grow. Often it can be found blooming on steep, shall w hillsides when snow is still on the ground. The entire plant is hairy and when ripe the seed head is covered with long, feathery-tipped fruits. This little harbinger of spring was much admired and respected by the Plains Indians. They considered it very brave to appear, all alone as it does, under such adverse conditions.

Prairie-coneflower (Ratibida columnifera)

Prairies and plains throughout the State. Some said that western tribes used the leaves and cylindrical heads of this plant to make a beverage, like tea.

Prairie four-o'clock (Mirabilis nyctaginea)

On the uplands of the prairie and plains. The Omaha called this plant "strong medicine". Some used the root to make a remedy for fever. It was also mixed with blacksamson and boiled to make a vermifuge.

Prairie goldenpea (Thermopsis rhombifolia)

On plains in western part of the State. The flowers of this legume were dried and used in the smoke treatment for rheumatism. The flowers were mixed with hair and the mixture burned under the affected parts. The smoke and heat were confined with a close covering.

Purple prairieclover (Petalostemon purpureum)
White prairieclover (Petalostemon candidum)

Both of these legumes grow on uplands of prairie and plains. Western Indians said the leaves were sometimes used to make a beverage like tea. The Pawnee bound together the tough elastic stems to make brooms to sweep their house. The Pawnee name for these plants is "broom weed".

Roundhead lespedeza (Lespedeza capitata)

On hillsides of prairie and plains in southern part of State. The Pawnee name "rabbit foot" is a descriptive name for this plant.

Sego lily (Calochortus nuttallii)

Dry hillsides in western part of the State. The bulb-like roots were eaten by the western Indians. They were generally boiled or baked and are very nutritious.

Shell-leaf penstemon (Penstemon grandiflorus)

Sandy soils of prairie and plains. A decoction, made from the leaves of this showy plant, was taken for chills and fever.

Silktop dalea (Dalea aurea)

More common on hillsides of the plains. The Plains Indians crushed the leaves to prepare a drink used for colic and dysentery.

Skeletonplant (Lygodesmia juncea)

More common on the plains. The Omaha made a medicine from the stems that was used to treat sore eyes. In the north, where the compassplant did not grow, the stems were gathered and cut into pieces to cause the juice to exude. When this hardened it was collected and chewed as gum.

Slimflower scurfpea (Psoralea tenuiflora)

Common legume on prairie and plains. Garlands, made from the tops of this plant, were worn to protect the head from the summer sun.

Snow-on-the-mountain (Euphorbia marginata)

A weedy plant in disturbed places. The Pawnee name was "poison" indicating that they recognized the poisonous properties of the plant.

Tufted eveningprimrose (Oenothera caespitosa)

On dry hillsides and nearly barren clay banks along the Missouri and west. Only a few trained botanists left reports telling what Dakota was like when only the Indians lived here. An English botanist, John Bradbury, traveled up the Missouri in 1811. He states in his Journal that after leaving the Niobrara [getting into South Dakota] the bluffs along the Missouri gradually changed in appearance. He noticed a number of places with a deep brown color that seemed to have no vegetation. On May 29, 1811, Bradbury visited such a bluff, a short distance above present-day Chamberlain, and saw a number of large white flowers on the nearly barren ground. He wrote, "this plant belongs to a new species of Oenothera [eveningprimrose] that has neither stem nor scape, the flower sitting immediately on the root". This was the plant now called tufted eveningprimrose.

Western marbleseed (Onosmodium molle)

Plains and prairies over the State. The white, stone-like seeds were collected and used to put in gourd shells to be used as rattles.

Western wallflower (Erysimum asperum)

More common on the plains, Missouri River and westward. On June 14, 1811, the English botanist, John Bradbury, visited the Arikara village in what is now Corson County, South Dakota. The Arikara medicine man, or doctor, saw Bradbury collecting plants so he offered to show the botanist his own medicine bag. Bradbury says that it contained down of the common cattail, a quantity of sagewort, some roots of blacksamson, three species of milkvetch, and the species in greatest abundance, a species of wallflower. In most tribes the number four was a mystic number and was much used in ceremonies. The wallflower with its four flower petals and its four-angled seed pods no doubt had a mystic significance. The Arikara medicine man probably made much use of this species. European botanists call this family of plants the Cruciferae family because the flower petals spread so as to form the four arms of a cross.

Wild onion (Allium drummondi)

Prairies and plains over the State. This and other species of wild onion were used for food. They were eaten raw as a relish and sometimes cooked as a flavor for meat or soup.

Yellow woodsorrell (Oxalis stricta)

On disturbed, or waste places, of prairie and plains. The Pawnee said the buffalo were fond of this plant. Indian children ate it because of its pleasantly sour taste. The bulbs were pounded and fed to horses to make them run faster.

GRASSES - in Prairie and Plains

Big bluestem (Andropogon gerardi)
Little bluestem (Andropogon scoparius)

Big bluestem is common on lowlands of prairie and plains. Little bluestem is common on prairie uplands and on shallow soils of the plains. These grasses were called "red hay" by the Pawnee Indians. When you see the color of vegetation in the fall of the year you can agree that this is a good name. Big bluestem was often used to lay on poles to support the earth covering of the lodges. The stiff seed stalks, when pointed with a thorn from the hawthorn, were sometimes used by little boys as arrows to shoot frogs. The lower blades were used by some medicine men to make a tea to be given to a person who felt weak and feeble.

Blue grama (Bouteloua gracilis)
Buffalograss (Buchloe dactyloides)

These two shortgrasses were common on the plains. They were most abundant in the west where the Cheyenne, Arapahoe, and Teton Dakota lived. These grasses grew in the country where explorers first saw the prairie dog and where the buffalo were most abundant. Pioneers used slabs of this shortgrass sod to build their sod houses. Houses built from sod of these grasses were not as long lasting as those built with the sod of the rhizomatous prairie grasses, such as big bluestem.

Indiangrass (Sorghastrum nutans)

On lowland and subirrigated sites, more common southeast. Golden, or tawny, seed heads make this one of the most attractive of the prairie grasses. It was used, like big bluestem, to lay on poles to support the earth covering of the lodges.

Indian ricegrass (Oryzopsis hymenoides)

A bunchgrass on sandy lands of the west. The round seeds were sometimes gathered and ground into a flour to be used as food.

Needle-and-thread (Stipa comata)
Porcupinegrass (Stipa spartea)

Needle-and-thread of the plains and porcupinegrass of the prairie look much alike and were used in the same way. The Pawnee Indians called these grasses "hairbrush". The stiff awns and attached seeds were firmly bound into a bundle and tied with sinew. The sharp points on the grains were then broken or burned off leaving a brush for dressing the hair.

Switchgrass (Panicum virgatum)

A tall grass in low places on the prairie and less common on the plains. When cutting up the meat, during the winter buffalo hunt, Indians avoided laying the meat on this grass because the chaffy glumes, on the seeds, would stick to the meat and be difficult to remove.

Western wheatgrass (Agropyron smithii)

Common on clay soils of the plains. This cool-season grass is abundant and has been designated as the State Grass of South Dakota. This grass, like many of the grasses, provided food for the buffalo. This animal was really the mainstay of life for the Indians living on the plains. They used the meat for food, the hides for tipis, boats, and clothing, the horns and bones for ornament and tools. The shoulder blade was made into a hoe, used by the Indian women to cultivate their patch of corn.

WOODLAND

Woodlands, in the original vegetation of South Dakota, were limited to the Black Hills, the flood plains of streams, and scattered favorable sites in the eastern part of the State. Less than five percent of the original vegetation was classed as woodland. However, trees, because of their scarcity, were very important to the Plains Indian. Groves of trees were sometimes considered sacred places, they were frequently used as meeting places and often were given place names.

Woodland, occurring in only a few places, not only strongly influenced living conditions but it set limits on the places where certain people could live. The original Village Tribes, Mandan, Arikara, and Hidatsa, lived along the Missouri and some of its tributaries. When building their permanent lodges they used stout posts from trees, such as elm, ash, or hackberry, to support the thatched and soil covered roof. They found that areas not far from streams were productive sites for their small fields of corn, beans, and squash. Such small fields were usually located at the mouth of a small ravine, a little distance from the stream. Here the soil was fertile but the sod was not so tough that it could not be worked with tools of wood or bone. Woodland was the ancestral home of the Village Tribes and after moving into South Dakota they still found most of the necessities of life in or near the woods.

TREES - in Woodland

Because of the scarcity of trees all woody plants were used at times for firewood. Many kinds of trees had other more specific uses.

American basswood (Tilia americana)

A tall tree in the southeastern part of the State. The inner bark fiber was used for making cord or rope. Tribes in the woodlands east of South Dakota used these fibers to weave bags for storing of food or other valued articles. The Pawnee in Nebraska used the inner bark to make mats to be placed on the lodge floor.

American elm (Ulmus americana)

Common on floodplains over the State. Forked elm logs were used for support posts in building the lodge. Sections of elm logs were hollowed out with fire and then used as mortars. To make the mortar a section of log was placed upright and a fire started on top. This would gradually burn out a bowl shaped cavity, as much as six or seven inches deep. Such bowls, or mortars, were used for pounding or grinding corn, or other foods. Wooden mortars were used in place of the stone mortar, or metate, which was used by the Indians of the Southwest. The pestle was also made of elm wood.

p. 17 blank
p. 18 unreproducible photo

Black walnut (Juglans nigra)

A native tree on creek and river bottoms in the southeast corner of the State. The nuts were used for food and a black dye was made from the root. For food the nuts were eaten plain, served with honey, or were made into soup. When available these nuts were consumed in great quantity.

Boxelder (Acer negundo)

In stream valleys over the State. This tree, a relative of the sugar maple, was tapped for the sap which was then boiled down to make sugar. The sap was collected in the spring after gashing the bark. Some tribes used boxelder wood to make charcoal used for ceremonial painting of the person and for tattooing.

Bur oak (Quercus macrocarpa)

Found in the foothills of the Black Hills, on steep breaks adjacent to stream valleys over the State, and in scattered groves in eastern South Dakota. The acorns were sometimes used for food. The bitter and astringent properties were extracted by leaching with wood ashes, preferably the ashes from American basswood.

Downy hawthorn (Crataegus mollis)

A small tree in the eastern part of the State. The marble-sized red fruit ripens in September. The fruit was eaten fresh by children but adults used it only at times when other food was scarce.

Eastern redcedar (Juniperus virginiana)
Rocky Mountain juniper (Juniperus scopulorum)

Eastern redcedar occurs along the Missouri river and farther east. Rocky Mountain juniper occurs west of the river. These two species look much alike and they had the same uses. The fruits and leaves were boiled to make a medicine for coughs. For a cold in the head twigs were burned and the smoke inhaled. The cedar standing dark and still in lonely places seemed to be in communion with the Higher Powers. For this reason some tribes considered the cedar as sacred and said that the mythical Thunderbird had its nest "in a forest of cedar". Because of its mystic quality, cedar boughs were sometimes put on tipi poles to ward off lightning.

Green ash (Fraxinus pennsylvanica)

Along streams over the State. Wood of this tree was used for arrow shafts and for bows. It was not considered the best wood for bows but reasonably good. Small straight stems were sometimes drilled out and used for pipestems. This was done by using a smaller stick, dipped in water and sand, and twirling it like a drill. Green ash wood was also used for the frames and crossbars in making snowshoes. The wood for the frame was steamed over a fire to make it more pliable. The Indian design for snowshoes was copied and used by fur traders and trappers. Some tribes ascribed mystic powers to the ash and used the wood in their Sacred Pole.

Hackberry (Celtis occidentalis)

In valleys and sometimes in small groves on uplands. The Dakota used the berries as a flavor for meat. They used this much like black pepper is used. They pounded or ground the berries, seeds and all, and then sprinkled it on the meat as a seasoning. The Pawnees pounded the berries fine, then added a little fat and mixed this with parched corn to make a dish that they described as very good.

Hickory (Carya spp.)

This tree was known by tribes who lived or traveled in Minnesota or Iowa. The nuts were used for food, like black walnuts. The wood was used to make the frames for snowshoes.

Kentucky coffeetree (Gymnocladus dioica)

On deep moist soils in Clay and Union Counties. This tree is called coffeetree because the seeds were used as a substitute for coffee by pioneers west of the Alleghanies both before and during the Revolutionary War. The Indians made some use of the plant for medicine and Iowa tribes used the large beans as counters, or tally checks, in games of chance.

Lodgepole pine (Pinus contorta var. latifolia)

Scattered in Black Hills. Because the trunk of this tree is straight, light in weight, and easily worked, this tree was much prized for tipi poles. Tribes east of the Black Hills made trips to harvest these poles, or to trade for them with their western neighbors. A typical plains tipi required 20 to 25 poles that were 16 to 20 feet in length.

Osage-orange (Maclura pomifera)

This tree is not hardy in South Dakota but was known from Oklahoma. The wood, which is heavy, very hard, strong, and flexible, was used to make bows. The wood is bright orange when first cut but turns brown after exposure. Indians in Dakota would trade with southern tribes to obtain this wood which was considered the very best bow wood. The botanist John Bradbury, who visited the Arikara Village in South Dakota in the year 1811 says in his journal: "The price of a bow made from this wood at the Ricaras is a horse and blanket".

Paper birch (Betula papyrifera)

In the Black Hills and along the eastern border of the State. The bark of this tree was shredded and then bound in bundles for use as torches. Peeled off in sheets the bark was used to make utensils, such as the buckets used to catch the sap from maple trees in sugar-making time. North and east of Dakota, where the paper birch is a large tree, the bark was used by the Indians to make the birch-bark canoe. Similar canoes are still used in the lake country.

Plains cottonwood (Populus sargentii)

Eastern cottonwood (Populus deltoides)

Common along streams over the State. The cottonwood is the largest tree in South Dakota. Some tribes ascribed mystic properties to the cottonwood. The Omaha used wood from this tree to make their Sacred Pole. Slabs of this wood were sometimes found that could, with some shaping with stone tools, be used as a cradle board. The cottonwood also provided winter feed for horses. The bark from upper limbs was peeled off and then fed much like grain. Early explorers and trappers also found that this was a good winter feed but they cautioned not to feed the strips of bark when they were frozen, as then the sharp edges could cut a horse's mouth. The early day trappers, as well as the steamboaters, made many other uses of the cottonwood. The logs were used to make "dugouts" or log canoes. Either as logs or as roughly sawn timber the wood was used in building the trading post and the protective stockade. The wood provided fuel for the steamboats; nowever, large trees that fell into the river were the snags, called "sawyers" or "planters", that were a constant danger to these paddle-wheelers.

Prairie crabapple (Pyrus ioensis)

Along edge of woods in the southeastern part of the State. The crabapple was used for food by tribes who were familiar with it. This small tree flowers in May and the small yellowish-green apples ripen in October.

Red mulberry (Morus rubra)

This mulberry is native in eastern South Dakota. The large fruit is purple-red when it ripens in late June or July. The fruits, which are delicious, were much sought after by the Indians. They ate large quantities when they were in season and dried some for winter use.

Silver maple (Acer saccharinum)

The silver maple grew on floodplains in southeastern South Dakota. This tree is a close relative of the sugar maple (Acer saccharum) which grew in the eastern states as far west as Minnesota. The art of making maple sugar from the sap of the sugar maple was taught to the Colonists by the Indians. The Winnebagos and Chippewas were noted for their sugar making. About the time of the Civil War the Winnebagos sold as much as 15,000 pounds of maple sugar each year to the Northwest Fur Company. When the Dakota, and other tribes, moved from the land where the sugar maple grew they began to make maple sugar from the sap of the silver maple. Sugar making took place in the early spring. Trees were gashed and the sap was collected in buckets, and then boiled down. The children loved to pour some of this syrup out on the snow where it would harden and then could be eaten like candy.

Slippery elm (Ulmus rubra)

Along streams in the southeastern part of the State. The fresh inner bark was boiled and then taken as a laxative. The Omaha also used the inner bark when cooking buffalo fat to make lard. They did this for the added flavor and as a preservative to prevent it from becoming rancid. Sometimes the inner bark was braided to make ropes or cords.

SHRUBS AND WOODY VINES - in Woodland

American elderberry (Sambucus canadensis)

On flood plains in the southeastern part of State. The deep purple or black fruits ripened in August or September and were used for food when fresh. In June or July the white blossoms were dipped into hot water to make a tasty drink. Small boys used the larger stems of the bush to make a toy similar to a pop-gun.

American hazel (Corylus americana)

Found in the Big Sioux Valley and the Black Hills. When the nuts ripened in August or September they were gathered for food. They were eaten raw with honey or used as a body for soup.

American plum (Prunus americana)

Forming thickets in valleys throughout the State. The fruit was highly valued for food, being eaten raw or cooked as a sauce. Plums were also dried for winter use. The Omaha planted their corn, beans, and squash when the plums came into bloom. A broom for sweeping the floor of the lodge was made by binding together a bundle of plum twigs. The plum was used because of its toughness and elasticity. Plum seeds were used to make the playing pieces for a game, somewhat like dice. Three pairs of the pieces were used after the proper markings were burned on each seed. The pieces were thrown from a small basket woven from willows.

Bearberry (Arctostaphylas uva-ursi)

A prostrate shrub found in the Black Hills. The leaves were used for smoking. The large red berry has a sweet pleasant taste and was used by some Indians as a food.

Black currant (Ribes americanum)

In woods in eastern part of State. The small black berries were not used for food. The root of the plant was used in making a medicinal drink.

Black raspberry (Rubus occidentalis)
Wild-red raspberry (Rubus idaeus)

Both species grew in woods over the State and were used in the same way. The berries were used for food, eaten fresh when they ripened in July or August and dried for winter use. Young leaves were steeped in hot water to make a drink like tea.

Chokecherry (Prunus virginiana)

This shrub, or small tree, was common along streams. The fruit was a very important food of the Indians. One of the months in the Dakota calendar was named "the month when cherries are ripe". It was at this time, when food was plentiful, that the annual Sun Dance ceremony was held. The chokecherry was so important that sticks from this plant were used in this ceremony. Fruit of the chokecherry was eaten fresh or was dried for winter use. In July or August the people traveled to places where cherries were abundant to gather and dry the fruit. To prepare for storage the cherries were first pounded to a pulp. This was done in a wooden mortar, or in a rawhide container holding a large anvil stone on which the fruit was crushed with a smaller pounding stone. This pulp was then shaped into small cakes that were dried in the sun. During the winter dried cherry cakes were mixed with dried meat to make pemmican, a dish like mincemeat.

Coralberry (Symphoricarpos orbiculatus)

In thickets in the eastern part of the State. The leaves of coralberry were steeped to make a medicine for weak or inflamed eyes.

Golden currant (Ribes odoratum)

Hillsides along streams, especially on north-facing slopes, in the eastern part of the State. The Dakota ate the bluish-black berries raw or pounded them with dried meat to make pemmican. In 1832 the artist George Catlin traveled up the Missouri and visited a Mandan village in North Dakota. Catlin tells this about a feast he attended: "The food consisted of three dishes. A large wooden bowl held a roast of choice buffalo ribs, another was filled with a sort of pudding made of wild turnip [common breadroot] flour and flavored with dried wild currants and an earthen tray was heaped with pemmican and marrowfat".

Poisonivy (Rhus radicans)

This shrubby, or sometimes vine-like, plant occurs in thickets and woods. The Indians knew this plant was very poisonous to the touch and they avoided it. People who enjoy the outdoors should learn to recognize and respect this plant. An old saying to remember is "leaves of three - let them be".

Serviceberry (Amelanchier alnifolia)

In woods and thickets over the State. When the sweet blue-black berries ripened in late June or July they were prized for food. The wood was sometimes used for arrow shafts.

Silky dogwood (Cornus amomum)

In wooded valleys. The inner bark of this shrub was scraped off and then dried after which it was used for smoking.

Smooth sumac (Rhus glabra)

On hillsides at the edge of woods. In the fall, when the leaves turned red, they were gathered and dried for smoking. The Dakota called this plant "yellow wood". The roots and lower stems were used to make a yellow dye. The fruits and roots were used by many tribes to make certain medicines. Some say the Indians pounded the fruits into a flour that was used when food was scarce during severe winters.

Virginia creeper (Parthenocissus quinquefolia)

This five-leaved vine was common in woods. It is sometimes called "false grape". The Indians in Nebraska called it "ghost grape". The fruit is not good to eat.

Wild gooseberry (Ribes missouriense)

In thickets along streams and on wooded hillsides. The berries were used for food when they ripened in July. Before they were ripe children would challenge each other to eat some of these very sour berries without making a grimace.

Wild grape (Vitis vulpina)

This woody vine was abundant in some places along river banks. The fruit was an important article of food. Grapes were eaten either fresh or dried for winter use.

FORBS - in Woodland

American ginseng (Panax quinquefolium)

In rich woods of eastern states, as far west as Minnesota and Nebraska. The roots of this plant were used by the Pawnee in making a love charm. This plant has become rare in its native range because the roots are gathered and shipped to the Orient. The Chinese use the roots, said to resemble the shape of the human body, as a medication for many ills and for making a love potion or a talisman.

Bloodroot (Sanguinaria canadensis)

In Black Hills and eastern edge of State. The roots were used to make a red dye.

Blue cohosh (Caulophyllum thalictroides)

Eastern part of State. The root was used to make a medicine given for fevers.

Canada violet (Viola canadensis)

Dense woods, more common eastern part of State. The Indians ate the young leaves and stems as a green vegetable and used the white flowers to make a drink like tea.

Charry groundcherry (Physalis heterophylla)

In open thickets. The yellow berries of this perennial plant were made into a sauce for food. If found in abundance they were dried for use in winter. This plant is still grown for fruit.

Columbine (Aquilegia canadensis)

In the Black Hills and eastern part of State. The seeds of this plant were crushed and the powder, or a paste made with the powder, was used as a perfume. Among the Omaha this was most used by bachelors.

Common cowparsnip (Heracleum lanatum)

Moist soils in woods. The tops of this plant were used in the smoke-treatment for certain diseases.

Giant-hyssop (Agastache foeniculum)

In thickets over State. The leaves of this plant were steeped in hot water to make a hot drink taken with meals. The leaves were also used as a flavoring in some cooked dishes.

Hog-peanut (Amphicarpa bracteata)

A slender perennial vine in moist woods and thickets. This legume produces two kinds of fruit. Above ground flowers produce long, narrow pods containing several small beans. Just below the soil surface there are a number of large single beans produced. These are about the size and shape of large lima beans. The small beans were used as food to some extent but the large beans were much sought after. The large beans had a very good taste as well as much nutritive value. This plant is sometimes called "mouse-bean" because the beans were gathered and stored by field mice and other small animals. The Indians would look for the beans stored by the animals, where they might find a pint or more in one place. The Dakota women would carry a bag of corn when they went to look for the beans and when they took them they would leave a quantity of corn. They thought that this was a fair exchange.

Hops (Humulus lupulus)

A vine growing in thickets. The fruits were steeped in hot water to make a drink to cure fevers and stomach pains.

Horsemint (Monarda fistulosa)

Open woods and thickets. The flowers and leaves were boiled to make a medicine to cure stomach ache.

Potatobean (Apios americana)

In the Black Hills and eastern part of the State. This perennial vine, in the pea family, has underground stems or tubers that are shaped like a necklace. These tubers were gathered and used for food by Indians in most of the eastern and mid-western states. This was the "pomme de terre" [apple of the earth] of the French and the "wild potato" of the Sioux. Because of the shape of the tubers the French missionaries called the plant "rosary roots". Where it grew it was an important part of the food supply and was prepared by boiling or roasting.

Purple meadowrue (Thalictrum dasycarpum)

In thickets and wooded valleys. As the fruits were getting mature in August they were broken off and stored for their pleasant odor. When used the dried fruits were crushed and then sprinkled over the clothing. The hollow stems of the plant were used by small boys to make flutes.

Wild flax (Linum perenne)

Open woods in western part of State. The seeds were gathered and used in cooked dishes because of their food value and for the good flavor they added.

Wild strawberry (Fragaria virginiana)

Woods and meadows in eastern part of State. All the tribes were very fond of wild strawberries in season. The fruit was too juicy to be dried for winter use. The Winnebago used young leaves of the plant to make a drink like tea.

Wood lily (Lilium philadelphicum)

In woods in west, and in moist meadows eastern part of State. The flowers of this plant were crushed or chewed and then applied as an antidote for the bite of a small brown spider.

GRASSES - in Woodland

Kentucky bluegrass (Poa pratensis)

In open woods and meadows. This European grass is the grass you have in your lawn. It was brought to America by some of the very first settlers and it quickly made itself at home. Indians gave it the name "white man's footsteps" because they said wherever the white man walked this grass sprang up in his tracks.

WET PLACES

Wet places such as rivers, lakes, springs, marshes, and potholes were important to the Plains Indian. Not only were they a source of water for man but for game birds and animals, thus providing good places to hunt wild game. Wet places were also important because of the kinds of plants that grew there. Some plants cannot grow "with their feet in water" but there are other important plants that must have this kind of environment in order to live.

TREES - in Wet Places

Peachleaf willow (Salix amygdaloides)

On flood plains and lake shores. Willow poles, of this and other species, were laid on the heavier timbers to support the roof of the earth lodge. Small poles of willow, because they were supple, were used to construct the frame of the sweat lodge. Smaller rods were interwoven with strips of bark to make partitions within the earth lodge.

SHRUBS - in Wet Places

Indigobush (Amorpha fruticosa)

On stream banks and lake shores. Whenever possible to obtain it near the butchering place, on the prairie or plains, this shrub was gathered and spread on the ground to receive the pieces of meat and keep them clean.

Red-osier dogwood (Cornus stolonifera)

On lake shores and streams over the State. The dried inner bark of this plant was used for smoking. The inner bark of dogwood was usually mixed with some other material, such as the dried leaves of smooth sumac. The Algonkian Indian word meaning mixture was "kinnikinnick" and Indians who spoke this language called their smoking mixture "kinnikinnick". Early French traders applied this name to several different plants, such as the red-osier dogwood, that were used for smoking.

Sandbar willow (Salix interior)

On sandbar and flood plains. The stems of this willow were peeled and used in basketry by the Omaha and other tribes. Some tribes made fish weirs of willow.

p. 28 blank
p. 29 unreproducible photo
p. 30 blank

Sweetberry (Viburnum lentago)

This shrub or small tree grew on stream banks or lake shores. The bluish-black fruit was picked and eaten when it ripened in August. It was not gathered in quantity.

FORBS - in Wet Places

American licorice (Glycyrrhiza lepidota)

Along lake shores and in draws that carry run-in water. The Dakota called this plant "Jealous woman" because the burs take hold of a man. The leaves, after being soaked in hot water, were applied to the ears for treatment of earache. The root was used for toothache, much like the root of blacksamson. A piece of the root is chewed and then held in the mouth against the aching tooth.

Common arrowhead (Sagittaria latifolia)

In shallow water of lakes and marshes. This plant has leaves shaped like an arrowhead and tuber-bearing rootstocks. The tubers, some as large as hens' eggs, are rich in starch and they were an important food source. To collect the tubers the Indians waded into the water and loosened them with their feet. The tubers then floated to the surface where they were collected. They were considered excellent when cooked with meat. Water birds, such as ducks, are also fond of these tubers. They would gather in great flocks to feed on them in the spring. This gave the Indian hunter an excellent chance to add waterfowl to his menu.

Common cattail (Typha latifolia)

Common in marshes and shallow water. The down from mature heads of the cattail was used as a cotton diaper for babies. In a family expecting the birth of a child the women collected a great quantity of the down to be used in this way. The down was also used for making pillows, for padding cradles, for making a dressing for burns and scalds, and on infants as talcum powder. The leaves were used to weave mats to be used on the floor or set up as partitions in the earth lodge. Rootstalks were used as food by some tribes, either raw or cooked. Young flower heads, when blooming, were made into soup.

Common marsh-marigold (Caltha palustris)

Marshes in eastern South Dakota. The Dakota ate the new spring growth as greens, either raw or boiled.

BEST COPY AVAILABLE

Field mint (Mentha arvensis)

This plant found in wet meadows was called "swamp medicine" by the Pawnee. This fragrant herb was steeped in water and the brew was taken to relieve stomach gas or stomach ache. The Dakota used mint as a flavor in cooking meat. They also packed it with their stores of dried meat, making alternate layers of dried meat and mint.

Jerusalem-artichoke (Helianthus tuberosus)

This sunflower-like plant grows on moist soils. In late summer tubers form on the fleshy rootstocks. Several tribes in the northeastern states cultivated this plant as an article of food. Prairie tribes used the tubers of the wild plant for food. They ate them raw or cooked them by boiling or roasting. In some places this plant is still grown for its potato-like tubers.

Pale puccoon (Lithospermum canescens)

Moist soils in the eastern part of the State. The Omaha crushed the stems and leaves of this plant and applied the pulp to the skin as a remedy for rash or eczema.

Scouring-rush (Equisetum spp.)

Along lake shores and on other wet soils. This rush-like plant has hollow, jointed, green stems and no apparent leaves. The outer coat of the stem is impregnated with silica and is rough. It was used by the Indians for polishing, as sandpaper is used. The Omaha name for the plant was "the-snake-is-how-smooth". Children sometimes made whistles of the stems.

Softstem bulrush (Scirpus validus)

In marshes in the eastern part of the State. The grayish-green, round stems of this plant are 4 to 8 feet high. The tender white part at the base of the stem was picked and eaten raw. The stems, after being flattened, were used to weave into matting to be placed on the lodge floor.

Sweetflag (Acorus calamus)

In swamps and along streams in eastern states as far west as Minnesota. This plant is found in isolated locations in the Dakotas where it was probably introduced by the Indians. In South Dakota it is found in the northeastern part of the State and in Gregory County. Many tribes had a very high regard for the medicinal properties of this plant. The rootstock was chewed as a cough remedy and as a remedy for toothache. For stomach gas or colic a liquid medicine was made by mixing the pounded rootstock in water. This was also used as a remedy for colds and fever. In addition to the medicinal uses the Indians liked the pleasant odor of the leaves.

Sweetscented bedstraw (Galium triflorum)

Around springs and wet places in woods. This plant was used by women of the Omaha tribe because of its fragrance. A handful of the plant was sometimes tucked under the clothing.

GRASSES - in Wet Places

Common reed (Phragmites communis)

Marshes and banks of lakes and streams over the State. This very tall, stout grass was used for thatching on lodges. Shredded it was made into ropes and nets. Where better materials were not available the dried stems were used for arrow shafts.

Prairie cordgrass (Spartina pectinata)

Wetlands throughout the State. This tall coarse-leaved grass was used as a thatching to support the earth covering of the lodges in the permanent villages.

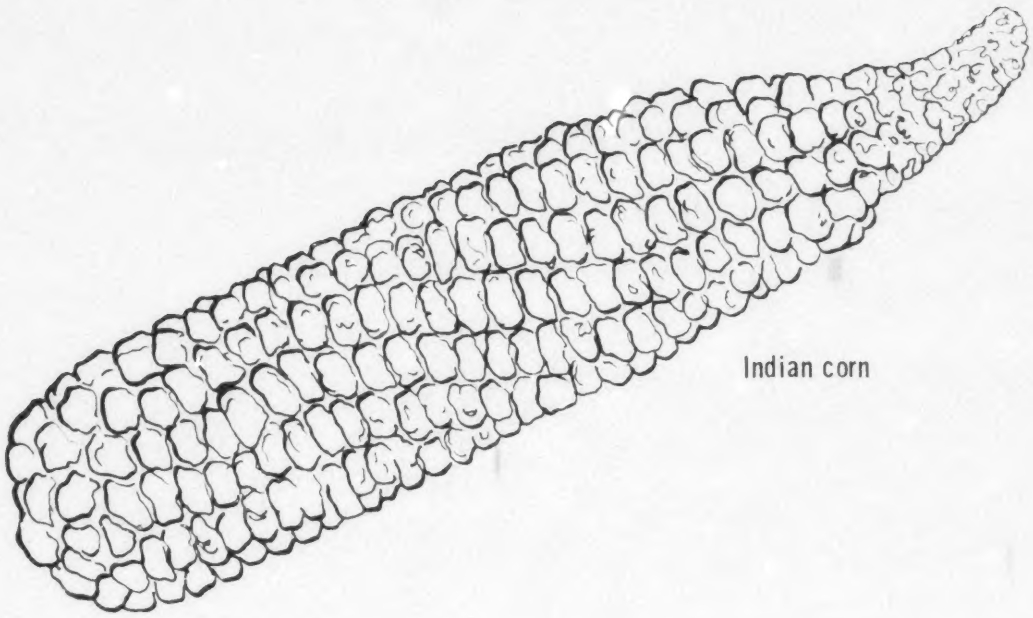
Sweetgrass (Hierochloe odorata)

On wet meadows over the State but more common in the eastern part. This sweet smelling grass was used for perfume. It was also used in ceremonies and rituals, sometimes being burned as an incense to attract good spirits. This grass is also native in northern Europe where it was strewn in front of churches on festival days and was called "holy-grass".

Wildrice (Zizania aquatica)

This annual grass grows in slow moving streams and lakes in the eastern part of the State. This cereal was an important food for the Indians in Dakota but not to the degree that it was for tribes in the lake regions of Minnesota and Wisconsin. This crop had to be harvested as soon as it was ripe for even a slight wind would then scatter the seed. The Indians in the lake regions used boats or canoes when harvesting wildrice. Bunches of the grass were pulled over the canoe and the heads were struck with a stick to shake off the seed which was caught in the canoe. The seed was then laid on scaffolds covered with reeds and grass under which a slow fire was maintained for 30 hours. This parched the husk so that it could be more easily removed from the grain. Threshing was done by placing about one peck of the wildrice in a skin-lined hole, about one foot wide and one foot deep, and then stomping on it with one foot. After removing the chaff, the cleaned grain was stored in pottery or skin containers. The Dakota men harvested this grain but all other grain was harvested by the women. Wildrice is still considered a delicacy in this country and is used on special occasions for stuffing wildfowl, especially ducks.

AGRICULTURE



Indian corn

REFERENCES

AND

INDEX

AGRICULTURE

In addition to using the native wild plants, the Indians of North and South America domesticated such important crop plants as corn, potatoes, tomatoes, and beans. The Arikara and Mandan Indians who lived in the Dakotas raised corn, squash, pumpkins, beans, and sunflowers.

Indian corn (Zea mays) is without doubt the greatest agricultural achievement of the prehistoric American Indian. This plant, thought to be native to Central America, was so improved by selection that it provided a near perfect food plant for prehistoric man. Its rows of persistent seeds protected by the husk made it easy to harvest and store. When white men came to America they found all the varieties of corn that are now known except the recently developed hybrids. They found strains that were adapted to mature in different length growing seasons and in different climates. The Pilgrims were thankful for corn raised by the Indians in Massachusetts. Coronado did not find cities with streets of gold but he did find corn being raised in New Mexico. Lewis and Clark found the Arikaras and Mandan raising corn in the Dakotas. Because corn is such an important crop, we can truly say that our agriculture owes much to the American Indian.

p 36 blank

REFERENCES

1. Bradbury, John, 1817, "Travels in the Interior of America , in the years 1809, 1810, 1811, including a description of upper Louisiana, together with the states of Ohio, Kentucky, Indiana, and Tennessee, with the Illinois and western territories, and containing remarks and observations useful to persons emigrating to those countries". Liverpool. (Excerpts quoted by McKelvey, Susan Delano, 1955, "Botanical Exploration of the Trans-Mississippi West", Arnold Arboretum of Harvard University, Jamaica Plains, Massachusetts.)

2. Catlin, George, 1844, "Letters and Notes on the Manners, Customs, and Conditions of the North American Indians", London. (Excerpts quoted by McCracken, Harold, 1959, "George Catlin and the Old Frontier", Bonanza Books, New York.)

3. Chittenden, Hiram Martin, 1902, "The American Fur Trade of the Far West", New York, N.Y. (Reprinted in 2 volumes 1954 Academic Reprints, Stanford California.)

4. Gilmore, Melvin Randolph, 1909, "A Study in the Ethnobotany of the Omaha Indians", thesis submitted to University of Nebraska for M.A. Degree, reprinted 1913, Collections Nebraska State Historical Society Vol. 17, pp. 314-357.

5. Gilmore, Melvin Randolph, 1912, "Uses of Plants by the Indians of the Missouri River Region", 33rd Annual Report of Bureau of American Ethnology to the Sec. of the Smithsonian Institution.

6. Gilmore, Melvin Randolph, 1913, "Some Native Nebraska Plants With Their Uses by the Dakota" Collections Nebr. State Historical Society, Vol. 17, pp. 358-370.

7. Hitchcock, A. S., 1935, second edition revised by Agnes Chase, 1951, "Manual of Grasses of the United States", USDA, Misc. Pub. No. 200, Washington, D.C.

8. Johnson, James R. and James T. Nichols, 1970, "Plants of South Dakota Grasslands", Bull. 566 SDSU, Brookings, S.D. 163 pp. illus.

9. Kempton, J. H., 1931, "Maize, the plant breeding achievement of the American Indian", Vol. XI, Smithsonian Scientific Series, New York. pp. 319-349 illus.

p 38 blank

10. Palmer, Edward, 1871, "Food Products of the North American Indians". Report of the Commissioner of Agriculture for the year 1870, Wash. Govt. printing office pp. 404-428, illus.

11. Underhill, Ruth M., 1953, "Red Man's America", The Univ. of Chicago Press.

12. U.S.D.A., Soil Conservation Service, 1971, "National List of Scientific Plant Names".

13. Van Bruggen, Theodore, 1971, "Wildflowers of the Northern Plains and Black Hills", Bulletin No. 3, Badlands Natural History Assoc., Interior, S.D., 65 pp., illus.

14. Wedel, Waldo Rudolph, 1936, "An Introduction to Pawnee Archeology", Smithsonian Institution Bur. of American Ethnology Bulletin 112, U. S. Govt. Printing Office, 122 pp. illus.

15. Will, George F. and George E. Hyde, 1917, "Corn Among the Indians of the Upper Missouri", reprinted by Univ. of Nebr. Press, Lincoln, Nebraska.

I N D E X

TREES

Definition: Trees are woody plants that reach a mature height of at least 8 feet, have a well-defined stem, and a definite crown shape. (There is no clear-cut distinction between a small tree and a shrub.)

Scientific Plant Name	Common Plant Name	Page No.
Acer negundo	Boxelder	20
Acer saccharinum	Silver maple	22
Acer saccharum	Sugar maple	22
Betula papyrifera	Paper birch	21
Carya spp.	Hickory	21
Celtis occidentalis	Hackberry	21
Crataegus mollis	Downy hawthorn	20
Fraxinus pennsylvanica	Green ash	20
Gymnocladus dioica	Kentucky coffeetree	21
Juglans nigra	Black walnut	20
Juniperus scopulorum	Rocky Mountain juniper	20
Juniperus virginiana	Eastern redcedar	20
Maclura pomifera	Osage-orange	21
Morus rubra	Red mulberry	22
Populus deltoides	Eastern cottonwood	22
Populus sargentii	Plains cottonwood	22
Pinus contorta var. latifolia	Lodgepole pine	21
Pyrus ioensis	Prairie crabapple	22
Quercus macrocarpa	Bur oak	20
Salix amygdaloides	Peachleaf willow	31
Tilia americana	American basswood	19
Ulmus americana	American elm	19
Ulmus rubra	Slippery elm	23

SHRUBS and WOODY VINES

Definition: Shrubs are perennials that have a persistent woody stem, are less than 8 feet tall, and generally produce several basal shoots instead of a single stem. Woody vines are perennials having a persistent long, thin stem that may grow along the ground or climb on such things as trees, usually be means of tendrils.

Scientific Plant Name	Common Plant Name	Page No.
Amelanchier alnifolia	Serviceberry	25
Amorpha canescens	Leadplant	8
Amorpha fruticosa	Indigobush	31

SHRUBS and WOODY VINES (Cont'd)

Scientific Plant Name	Common Plant Name	Page No.
Arctostaphylas uva-ursi	Bearberry	23
Artemisia frigida	Fringed sagewort	7
Ceanothus herbaceous	Inland ceanothus	7
Cornus amomum	Silky dogwood	25
Cornus stolonifera	Red-osier dogwood	31
Corylus americana	American hazel	23
Gutierrezia sarothrae	Broom snakeweed	7
Mammillaria vivipara	Pincushion cactus	8
Opuntia spp.	Pricklypear	8
Parthenocissus quinquefolia	Virginia creeper	25
Prunus americana	American plum	23
Prunus pumila var. besseyi	Western sandcherry	8
Prunus virginiana	Chokecherry	24
Rhus glabra	Smooth sumac	25
Rhus radicans	Poisonivy	24
Rhus trilobata	Skunkbush sumac	8
Ribes americanum	Black currant	23
Ribes missouriense	Wild gooseberry	25
Ribes odoratum	Golden currant	24
Rosa spp.	Wild rose	9
Rubus idaeus	Wild-red raspberry	24
Rubus occidentalis	Black raspberry	24
Salix interior	Sandbar willow	31
Sambucus canadensis	American elderberry	23
Shepherdia argentea	Silver buffaloberry	8
Symphoricarpos orbiculatus	Coralberry	24
Viburnum lentago	Sheepberry	32
Vitis vulpina	Wild grape	25
Yucca glauca	Soapweed	8

FORBS

Definition: Forbs are non-woody plants, or herbs, that wither back to the ground after each season's growth. (All herbs except grasses are included in this grouping.)

Scientific Plant Name	Common Plant Name	Page No.
Achillea millefolium	Common yarrow	10
Acorus calamus	Sweetflag	33
Agastache foeniculum	Giant-hyssop	26
Allium drummondi	Wild onion	15
Amphicarpa bracteata	Hog-peanut	20
Anemone canadensis	Meadow anemone	13
Anemone patens	Pasqueflower	13
Apios americana	Potatobean	27

FORBS (Cont'd)

Scientific Plant Name	Common Plant Name	Page No.
Aquilegia canadensis	Columbine	26
Artemisia dranunculus	Linearleaf wormwood	12
Artemisia ludoviciana	Cudweed sagewort	11
Asclepias syriaca	Common milkweed	10
Asclepias tuberosa	Butterfly milkweed	10
Astragalus crassicarpus	Groundplum milkvetch	12
Calochortus nuttallii	Segolily	14
Caltha palustris	Common marsh-marigold	32
Caulophyllum thalictroides	Blue cohosh	26
Cucurbita foetidissima	Buffalogourd	9
Cuscuta spp.	Dodder	11
Dalea aurea	Silktop dalea	14
Desmanthus illinoensis	Illinois bundleflower	12
Dyssodia papposa	Dogweed	11
Echinacea pallida var. angustifolia	Blacksamson	9
Equisetum spp.	Scouring-rush	33
Erysimum asperum	Western wallflower	15
Euphorbia marginata	Snow-on-the-mountain	14
Fragaria virginiana	Wild strawberry	27
Galium triflorum	Sweetscented bedstraw	34
Gentiana puberulenta	Downy gentian	12
Glycyrrhiza lepidota	American licorice	32
Grindelia squarrosa	Curlycup gumweed	11
Hedeoma hispida	False-pennyroyal	12
Helianthus annuus	Common sunflower	10
Helianthus maximiliani	Maximilian sunflower	13
Helianthus tuberosus	Jerusalem-artichoke	33
Heracleum lanatum	Common cowparsnip	26
Humulus lupulus	Hops	26
Impatiens pallida	Pale snapweed	33
Ipomoea leptophylla	Bush morningglory	9
Lagenaria sp.	Dipper gourd	9
Lespedeza capitata	Roundhead lespedeza	14
Liatris punctata	Dotted gayfeather	12
Lilium philadelphicum	Wood lily	27
Linum perenne	Wild flax	27
Lithospermum canescens	Hoary gromwell	12
Lomatium foeniculaceum	Carrotleaf lomatium	10
Lygodesmia juncea	Skeletonplant	14
Mentha arvensis	Field mint	33
Mirabilis nyctaginea	Prairie four-o'clock	13
Monarda fistulosa	Horsemint	27
Oenothera caespitosa	Tufted eveningprimrose	14
Onosmodium molle	Western marbleseed	15
Oxalis stricta	Yellow woodsorrell	15
Panax quinquefolium	American ginseng	25

FORBS (Cont'd)

Scientific Plant Name	Common Plant Name	Page No.
Penstemon grandiflorus	Shell-leaf penstemon	14
Petalostemon candidum	White prairieclover	13
Petalostemon purpureum	Purple prairieclover	13
Physalis heterophylla	Clammy groundcherry	26
Physalis lanceolata	Lanceleaf groundcherry	12
Psoralea esculenta	Common breadroot	10
Psoralea tenuiflora	Slimflower scurfpea	14
Ratibida columnifera	Prairie-coneflower	13
Sagittaria latifolia	Common arrowhead	32
Sanguinaria canadensis	Bloodroot	25
Scirpus validus	Softstem bulrush	33
Silphium laciniatum	Compassplant	11
Silphium perfoliatum	Cup rosinweed	11
Solidago spp.	Goldenrod	12
Thalictrum dasycarpum	Purple meadowrue	27
Thermopsis rhombifolia	Prairie goldenpea	13
Typha latifolia	Common cattail	32
Verbena hastata	Blue verbena	9
Viola canadensis	Canada violet	26

GRASSES

Definition: Grasses are non-woody plants distinguished from forbs by their 2-ranked, strap-shaped leaves, or blades, and small flowers that attract little attention.

Scientific Plant Name	Common Plant Name	Page No.
Agropyron smithii	Western wheatgrass	16
Andropogon gerardi	Big bluestem	15
Andropogon scoparius	Little bluestem	15
Bouteloua gracilis	Blue grama	16
Buchloe dactyloides	Buffalograss	16
Hierochloe odorata	Sweetgrass	34
Oryzopsis hymenoides	Indian ricegrass	16
Panicum virgatum	Switchgrass	16
Poa pratensis	Kentucky bluegrass	27
Phragmites communis	Common reed	34
Sorghastrum nutans	Indiangrass	16
Spartina pectinata	Prairie cordgrass	34
Stipa comata	Needle-and-thread	16
Stipa spartea	Porcupinegrass	16
Zea mays	Indian corn	37
Zizania aquatica	Wildrice	34